

# Journal of Conventional Weapons Destruction

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Volume 11  
Issue 2 *The Journal of Mine Action*

Article 12

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April 2008

## Clearing the Way for a More Productive Future

Sophia Aron  
*United Nations Development Programme (UNDP)*

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### Recommended Citation

Aron, Sophia (2008) "Clearing the Way for a More Productive Future," *Journal of Mine Action* : Vol. 11 : Iss. 2 , Article 12.

Available at: <https://commons.lib.jmu.edu/cisr-journal/vol11/iss2/12>

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# Clearing the Way

For many communities, the land is their livelihood; however, the threat of landmines has affected agricultural communities all over the world. In this article, the author describes how, in Yemen, the United Nations Development Programme and other organizations are using techniques that fully preserve the environment and still allow for safe, successful demining.

by Sophia Aron [ United Nations Development Programme ]

Yemen is a country of unique geographical beauty, and most of its virgin landscapes remain undisturbed by modernization. In rural areas, tiny villages established hundreds of years ago continue their traditional agrarian lifestyle. In the desert areas, Bedouin tribes maintain their nomadic way of life. The people of these areas are completely dependent upon their land. The trees, vegetation and animals serve as sources of food as well as income. Landmine contamination is a serious problem for these people. The presence of mines blocks or hinders access to the land that is needed for grazing, water, agricultural production, firewood and other uses. Without full use of this land, villagers and Bedouin tribes are unable to sustain their traditional lifestyles. Indeed, the rate of poverty in mine-contaminated areas has steadily increased as a direct result of the limited access to the natural resources of these lands. The Yemen Executive Mine Action Center is using effective, but environmentally friendly, techniques to clear these mines and give Yemen a safer and more productive future.

Lands in Yemen were mined during several conflicts of the latter half of the 20<sup>th</sup> century. Before 1990 and the unification, North and South Yemen were two countries separated by a border. In the North, there was civil war from 1962–70. During the 1970s, there were three short border wars between the North and South (1972, 1978, 1979). These conflicts were, in many ways, Cold War scenarios, and the border became a typical Cold War border—heavily mined on both sides. After merging in 1990, the border became moot, but what remained was a mined belt that ran through the heart of the country.

### Environmentally-friendly Mine Clearance

Demining is an important tool in the fight against poverty in Yemen. Once land is demined, it can again be put to full use. It is of utmost importance, however, that demining processes preserve and protect the environment so that resources can be returned to benefit their owners. Because of these concerns, demining is, and always has been, an extremely environmentally friendly process in Yemen. Since demining began in Yemen, it has been Yemen's policy to make every effort to preserve the nature surrounding the mines. All of Yemen's demining techniques result in as little negative impact upon the environment as is safely possible. Whether working in rocky, mountainous areas, sandy deserts or overgrown agricultural land, demining teams

strive to maintain a balance between safety and preserving the natural habitat.

Mountainous areas comprise a high percentage of the land in need of mine clearing in Yemen. In areas such as Al-Dhale, Baida and Lahej, Yemen typically utilizes a combination of mechanized and manual techniques to clear the land of mines. The terrain is often rocky and sparsely covered with small trees. Teams use a combination of dogs and hand-held mine detectors to search the area and identify mines.

### Regulations to Protect the Environment

Yemeni tribes have developed a significant set of rules with regard to the protection of the environment—especially trees. When mines are found near trees, it is necessary for safety to remove a limited number of roots and low hanging branches. In these cases, however, the tree is never fatally harmed nor cut down as tribal law forbids such practices.

Trees are sources of life and income for the local populations. The wood is used for heating, cooking, building and other aspects of village life. Any part of a tree that must be cut for clearance is given to the villagers to whom the land belongs. Agreements over the protection of trees date back many centuries. Today even deminers must observe these laws while carrying out their work. Only small trees, whose branches cover the ground and obstruct access to mines, are allowed to be pruned. Taller and more established trees are, according to tribal laws, not allowed to be cut back in any way. These laws, in combination with the deminers' respect for the environment, serve largely to prevent any negative impact upon the mountain environment from demining operations.

### Using Available Technology and Better Techniques

Recently, Yemen has acquired a new piece of mechanical equipment, the backhoe. This equipment allows deminers to unearth mines and move them to another area where they are manually deactivated or destroyed. The mine is scooped into a shovel that is covered with grates, then the rubble is shaken out, but the mine remains within the shovel. Dirt and other small objects are deposited in one pile while mines and rocks are placed in another. Once this process is completed, the mines are identified and neutralized. To protect the operator, the cab of the machine is armored. As it has only been in use for a few months, there have yet to be any comprehensive studies on its effectiveness and envi-

ronmental impact. Contamination of the land by mine residues is prevented because the mines remain unexploded.

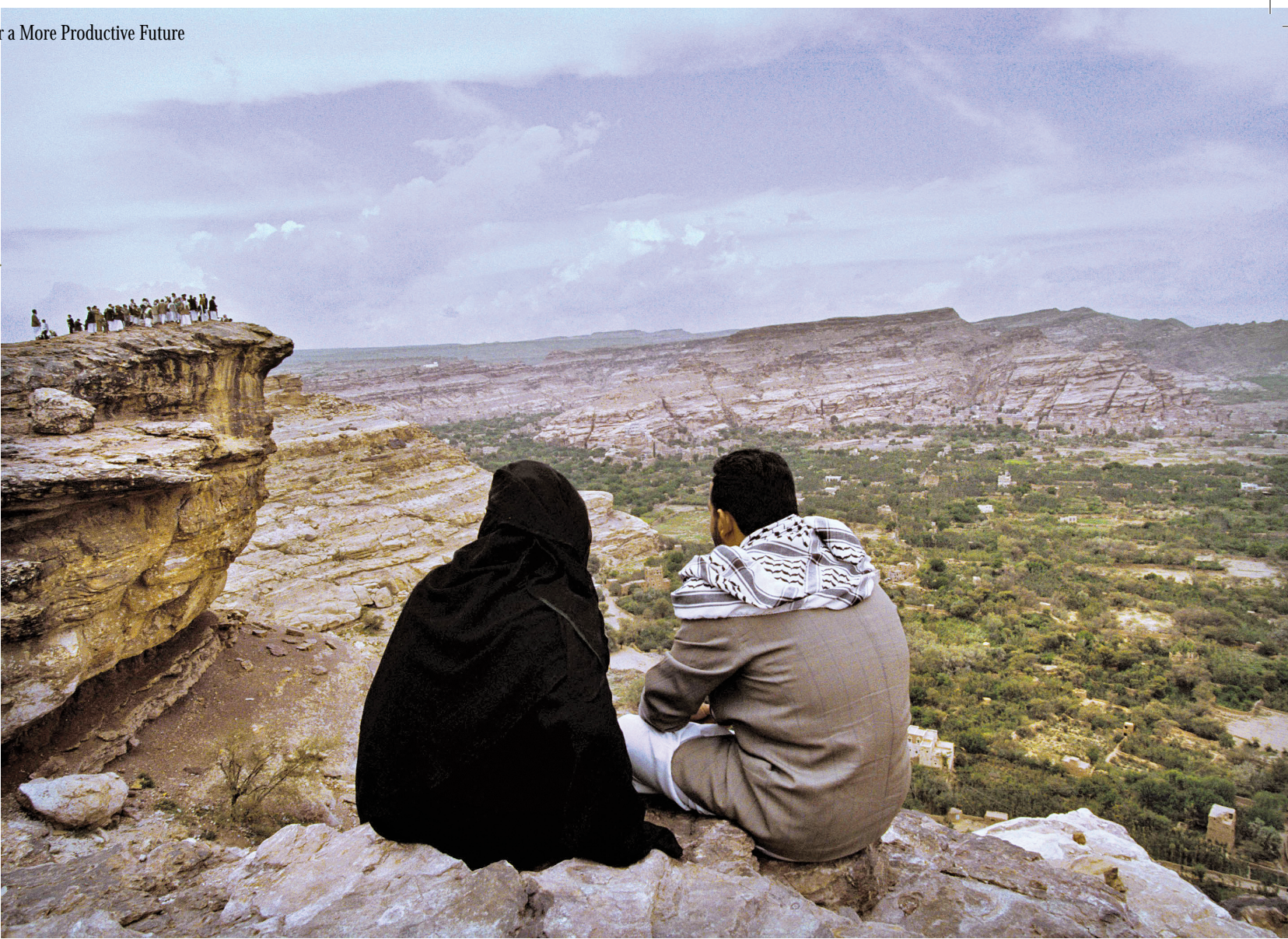
Animals living in the area are largely unaffected. Before the machine begins its work, an effort is made to remove from the area all animals that could potentially be harmed, while also setting up barriers for larger animals so as to prevent them from entering the area while work is in progress. In the event that smaller animals are caught up in the soil, they will fall through the grates of the machine with the dirt and rocks completely unharmed. This method of demining is currently being used in Yemen primarily to clear mountainous and agricultural lands. It is both efficient and effective, and preliminary reports from the deminers working in the field are mostly positive.

Clearing of desert areas remains a challenge. In these areas, the exact location of mines tends to shift because of the winds; however, their approximate location can be marked with the use of metal rods. Teams also

consist of a deminer with a mine detector and a specially trained dog and handler to identify the approximate location of mines. Removal can be a difficult and tiring process, with mines located up to a meter (3.2 feet) below the surface of the sand.

Currently the backhoe is being used to clear limited areas. While it has the potential to be the most effective method of clearing mines in the desert areas, it is, at this time, of limited use because the machine is unable to cross certain areas of sand without becoming mired down. This problem would be eliminated with a machine that utilizes bulldozer-like steel tracks instead of tires; with such a machine Yemen could successfully and more rapidly clear the vast desert land.

Yemen's environmentally-friendly techniques for clearing mines advance its economic and social progress by protecting the natural resources. The UNDP and YEMAC are literally clearing the way for a safer and more productive future in Yemen. ♦



A man and woman look out at a view of Wadi Dhahr in Yemen. Both local and foreign tourists visit the great mountain cliff, as do many newlyweds who arrive after their marriage ceremony. AP PHOTO/JOACHIM LADEFOGED VII



While studying Arabic in Yemen, Sophia Aron worked with the UNDP/ YEMAC program in its Sana'a office. She is currently a graduate student at the School of Oriental and African Studies in London where she is working on obtaining her Master of Arts in Near and Middle Eastern Studies.

Sophia Aron  
YEMAC/UNDP Volunteer  
Yemen Executive Mine Action Center  
PO Box 16267  
Sana'a / Republic of Yemen  
Tel: +967 1 532115  
Fax: +967 1 532129  
E-mail: Sophia\_Aron@yahoo.com  
MANSAZI@y.net.ye